



Third West Weekly Report Shepherd, Michael

to:

Joyce Ackerman, 'Craig Barnitz (cbamitz@utah.gov)' 12/06/2011 08:57 AM

Hide Details

From: "Shepherd, Michael" < Michaei. Shepherd @ Pacifi Corp.com >

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Barnitz (cbamitz@utah.gov)'" <cbamitz@utah.gov>

7 Attachments











Weekly Report 11-28 to 12-03.pdf Third West Weekly Log 2011-48.pdf 225051-1.pdf 225094-1.pdf 225202-1.pdf





225287-1.pdf 225393-1.pdf

Joyce & Craig,

Attached are the reports for the week of November 28, 2011.

All air monitoring results came back negative, except there was a positive hit on Friday, December 2, 2011. It was chrysolite.

Please let me know if you have any questions.

Thanks,

Mike Shepherd
Project Manager
Rocky Mountain Power - Major Projects
801.220.4584 Office
801.631.1310 Cell
801.220.2797 Fax
michael.shepherd@pacificorp.com





HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

	DITE T CHECKEIS-
DATE:	11/28/11
General	
$\overline{\square}$	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA	Complete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
_ NA	Combined Space Entry Permit From F
团	Exclusion zone operations are practiced as instructed.
☑	Decontamination unit is working properly.
☑	Workers are using decontamination unit as instructed.
☑	Workers use personal protective equipment properly.
$\overline{\mathbf{Z}}$	Set air samples at cardinal compass points around exclusion zone. Check
$\overline{\mathbf{A}}$	throughout the day to ensure proper operation. Observe control measures for dust and fugitive materials i.e. watering excavation sites and
L	track out prevention.
☑	Review sign-in/sign-out log throughout and at the end of the workday.
	Secure the site at the end of the workday
Samplin	ng
NA	Soil Confirmation sampling for any newly excavated areas
	Stationary Air Monitoring during contaminated soil removal around the perimeter of the
	exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
	removal
NA	Digitally photograph each sample location and at any place field sampling personnel
	determined necessary
☑ Í	Electronically file photo files into the on-site database





\square	Complete Field Documentation
$\overline{\mathbf{A}}$	Field Sample Data Sheets (FSDS)
\square	Logbook
NA	On-site computer database
\square	Label each sample media with a unique number
\square	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Ø	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
NA	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
NA .	Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station	Date: <u>11/28/11</u>				
Location: 3rd West, 1st South, SLC	Job Number:				
Survey Conducted By: _Justin Kargis	Title:	3			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.		S	x	
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	х			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	, k
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			х	* -
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.			х	,
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.			x	
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.			х	
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer of the tool is double insulated.			х	
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	*.
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.		8	x	

The exclusion zone was activated after Neman removed some equipment for work in the clean zone and fueled some equipment. They continued with concrete demolition in the throughout the day, following exclusion zone rules.

CVE worked on preparing the transformer pedestal forms.

Mike Shepherd on site to discuss items covered in previous week's meeting. Talked with him about plan to recycle demolished concrete and exclusion zone adherence.





HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

	DAILT CHECKLIST
DATE:	11/29/11
General	
<u>General</u> ☑	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
1112	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA	Complete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
NA	Exclusion zone operations are practiced as instructed.
	NA Decontamination unit is working properly.
	NA Workers are using decontamination unit as instructed.
	NA Workers use personal protective equipment properly.
\square	Set air samples at cardinal compass points around exclusion zone. Check
_	throughout the day to ensure proper operation.
Ø	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
abla	Review sign-in/sign-out log throughout and at the end of the workday.
☑	Secure the site at the end of the workday; PacifiCorp Employee
<u>Sampling</u>	
NA	Soil Confirmation sampling for any newly excavated areas
NA	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





NA	Electronically file photo files into the on-site database
	Complete Field Documentation
☑	Field Sample Data Sheets (FSDS)
abla	Logbook
NA	On-site computer database
∆ ,	Label each sample media with a unique number
abla	Seal sample(s) in zip lock plastic bags
☑	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
团	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
abla	Review and disseminate sample results as received from the laboratories to Project
	Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project:	3rd West Sub Station	Date:	11/29/11
Location:	3rd West, 1st South, SLC	Job Number:	
Survey Conducted By:	Jon Craig	Title:	IH Technician

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	4)
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

Standard	Title	In Compliance	Out of Compliance	□ N/A	Corrective Action Taken and Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.	х			
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	х			
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	х			6
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.	(х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.	х			
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	A.
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.	x			_
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.	х			
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	x			
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½" fire resistance barrier.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	х			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.		7	х	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

CVE framing stems in main excavated pit. Additional excavation for additional stems and footings in the Northwest area of the main pit.

Exclusion zone is not active today. The East Poly lined exclusion zone barrier fence needed to be moved about 20 feet to the West to make room for the extension of the main pit to the West where additional stems are being framed. The fence was moved over and onto undisturbed, uncontaminated clean filled soil, gravel capped areas. No disturbance of contaminated soil occurred today in the exclusion zone.





HEALTH SAFETY MANAGER (HSM)

	DAILY CHECKLIST
DATE:	11/30/11
<u>General</u>	
	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
1424	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
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NA	Trench/Evacuation Permit Form E
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NA	Exclusion zone operations are practiced as instructed.
	NA Decontamination unit is working properly.
	NA Workers are using decontamination unit as instructed.
,	NA Workers use personal protective equipment properly.
\square	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
☑	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
☑ .	Review sign-in/sign-out log throughout and at the end of the workday.
☑	Secure the site at the end of the workday; PacifiCorp Employee
<u>Sampling</u>	
NA '	Soil Confirmation sampling for any newly excavated areas
NA	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





NA	Electronically file photo files into the on-site database
Ø	Complete Field Documentation
\square	Field Sample Data Sheets (FSDS)
☑	Logbook
NA	On-site computer database
\square	Label each sample media with a unique number
\square	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
☑ .	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
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3rd West Substation Site Project Safety Audit

Project:	3rd West Sub Station	Date:	11/30/11
Location:	3rd West, 1st South, SLC	Job Number:	
Survey Conducted By:	Jon Craig	Title:	IH Technician

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
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1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.	х			
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	х			
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	x			
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	-
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.	х			
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			х	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.	x			
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1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.	х			
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	x			
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1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
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1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			х	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

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1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

CVE framing stems in main excavated pit. Additional excavation for additional stems and footings in the North and west area of the main pit.

Newman backfilling around stems and transformer pedestal/containment

Exclusion zone was active today until Noon. 1 Load of contaminated soil was loaded and hauled off-site in the AM. After Noon, excavation/loading of contaminated soil was halted in order to deactivate the exclusion zone. Deactivating the exclusion zone allowed for work to occur on the new building and for the installation of addition fencing from the South end of the existing building to the South fence. Once covered in Poly, this new fence and previously installed temporary fencing, completes the segregation of the energized portion of the yard from the current exclusion zone, thereby allowing access (without the need of asbestos related PPE) to the energized yard and existing building by PacifiCorp employees.





HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

	DAILT CHECKLIST
DATE:	12/1/11
General	
	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
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NA	Complete Employee Meeting Record Form B (where applicable
NA	Document required Respirator Training completion with Form H
. NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA	Complete all CSHASP Forms (for applicable activities plaimed for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
NA	Exclusion zone operations are practiced as instructed.
	NA Decontamination unit is working properly.
	NA Workers are using decontamination unit as instructed.
	NA Workers use personal protective equipment properly.
Š	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
Ø	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
	Review sign-in/sign-out log throughout and at the end of the workday.
Ø	Secure the site at the end of the workday; PacifiCorp Employee
Sampling) 2
NA	Soil Confirmation sampling for any newly excavated areas
NA	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





NAElectronically file photo files into the on-site database ablaComplete Field Documentation $\overline{\mathbf{A}}$ Field Sample Data Sheets (FSDS) ablaLogbook NA On-site computer database $oldsymbol{\Lambda}$ Label each sample media with a unique number $\mathbf{\Lambda}$ Seal sample(s) in zip lock plastic bags \square Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory \square Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples \square Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees NA Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project:	3rd West Sub Station	Date:	12/1/11
Location:	3rd West, 1st South, SLC	Job Number:	
Survey Conducted By:	Jon Craig	Title:	IH Technician

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	0
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			*
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	6
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.	х			
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	х			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	х			
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.	x			
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.	x			
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.		Ť,	х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.	4		х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.	x			
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	x			
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½" fire resistance barrier.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			х	,
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	х	41		^
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	,
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.		٨	x	
1926.602 (a) · (9)	Bi-directional earth moving equipment shall have audible alarms.	х		E-	
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

CVE cleaning up pad and forming rebar for the transformer pedestal.

Newman backfilling around spread footings at North end and around transformer pedestal/containment. Exclusion zone is not active today.

Eagle environmental hanging poly on new sections of fencing and reinforcing poly ties to all other fencing.





HEALTH SAFETY MANAGER (HSM)

DATE.	DAILY CHECKLIST
DATE:	12/02/11
General	
<u> </u>	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	activities for the day
NA	Safety Plaining or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA	Complete all CSHASP Forms (for applicable activities plaimed for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
NA	Exclusion zone operations are practiced as instructed.
NA	Decontamination unit is working properly.
NA	Workers are using decontamination unit as instructed.
NA	Workers use personal protective equipment properly.
\square	Set air samples at cardinal compass points around exclusion zone. Check
-	throughout the day to ensure proper operation.
☑	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
☑	Review sign-in/sign-out log throughout and at the end of the workday.
Ø	Secure the site at the end of the workday
Sampling	<u> </u>
NA	Soil Confirmation sampling for any newly excavated areas
$\overline{\checkmark}$	Stationary Air Monitoring during contaminated soil removal around the perimeter of the
	exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary
₽í	Electronically file photo files into the on-site database





✓	Complete Field Documentation
	Field Sample Data Sheets (FSDS)
\square	Logbook
NA	On-site computer database
	Label each sample media with a unique mumber
	Seal sample(s) in zip lock plastic bags
☑	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
☑	Package samples for transport lAW SOP 2-1, Packaging and Shipping of Environmental Samples
NA	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station	Date: <u>12/02/11</u>
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: <u>Justin Kargis</u>	Title:

Standard	Title	In Compliance	Out of Compliance	D N/A	Corrective Action Taken and Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	=		х	
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			Α.

Standard	Title	In Compliance	Out of Compliance	O N/A	Corrective Action Taken and Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	х			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			х	*
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.	a.		х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.	. ,		x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			х	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.	2		х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х	=		
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	91
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			х	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.			х	E A
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.			x	
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.			х	
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.		,	х	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer of the tool is double insulated.	1		х	
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

The exclusion zone was suspended for work today. Contaminated material was either encapsulated with plastic or covered with other material. No entry into the EZ other than to bring rinsed equipment out.

Newman backfilled and compacted material in the S.E. area of the station.

CVE worked on transformer pedestal framework and reinforcement.



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station	Date: <u>12/03/11</u>
Location: 3 rd West, 1 st South, SLC	Job Number:
Survey Conducted By: Justin Kargis	Title:

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.	*		х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.		1	x	
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.		,	х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title .				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	х			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			х	,
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.		E	x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	,
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			х	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.			х	
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.			х	
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.			x	
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.		100	x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer of the tool is double insulated.			х	
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Comments:

CVE fabricators came in to continue working on transformer pedestal. They had to temporarily open the west gate of the EZ to position a boom truck for work. Exclusion zone remained suspended throughout the day. Fabricators finished work around 2:30.



РНОТО 1



PHOTO 2



РНОТО 3



РНОТО 4

R & Renvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE: 11-28-11	FILE:	

SITE PHOTOGRAPHS

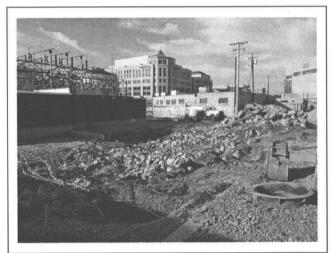




РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R&R Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:
DCR

CREATED BY:
JRWC

DATE:
11/29/2011

FILE:

SITE PHOTOGRAPHS





РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R&R Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:
DCR

CREATED BY:
JRWC

DATE:
11/29/2011

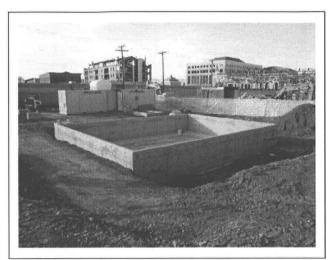
FILE:

SITE PHOTOGRAPHS





РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R&R Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:
DCR

CREATED BY:
JRWC

DATE:
12/1/2011

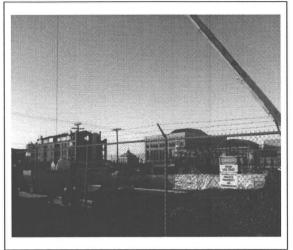
FILE:

SITE PHOTOGRAPHS

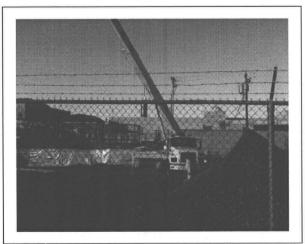




РНОТО 1



РНОТО 2



РНОТО 3

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE: 12-03-11	FILE:	

SITE PHOTOGRAPHS



PACIFICORP OPERATIONS - Field Construction Representative Daily Log Monday, November 28, 2011 PROJECT NAME: Third West Sub - Rebuild DATE: MAIN CONTRACTOR: Casha Valley Floatrie

PO & Work Order NO. :	30000780	50 / 10035803	WAIN CONTRACTO	R: Cache valley	Electric
Crew Start Time:	6:50	Crew Stop Time:	17:10	Tot Hrs mns:	10:20
FCR Start Time:	6:50	FCR Stop Time:	17:20	Tot Hrs mns:	10:30
Use military time format 00:00		-			
•			*		
WEATHER CONDITIONS:		High clouds, 35 degr	ees in AM, 45 degrees	in the PM	
DECORPTION (- I. /					
DESCRIPTION: (work perf		omments, instructions to ded form ties from the walls and g			
that occurred during the pour, p					
fueled up equipment in the excl					
the disposal facility. Newman d					
concrete and material removed					
indicates that CVE/Newman is					
will be reviewed by RMP and a representative of Southwire to r					
cable was to be direct buried, a					
to ensure that the cable can be					
to the substation. CVE fab cre	ew = 5/6, N evman =	4, R&R = 1, Wilding = 1.		·	
	•				
IIF WORKING IN ENERGIZE	D SUBSTATION:	· · · · · · · · · · · · · · · · · · ·			
Dispatcher login, name and time		0650			
Dispatcher logout, name and tir					
DISCREPANCIES:			MMEDIATE CORRECT	FIVE ACTION TA	KEN:
No resolution on the 20' ground rod	issue		CVE to provide per unit price	to drill concrete.	
	·	•	· · · · · · · · · · · · · · · · · · ·		
	•				
					
DELAYS OR LOST TIME E	NCOUNTERED:				
					
·					
			•		
FOURDAENT (terms of the late.			<u> </u>	
EQUIPMENT (working, del CVE fab crew: Portable toilet (2), fi		ce trailer coney exclusion zone or	oney (2) tool trailer, crew true	ck boom truck (2) No	wman:
portable wash-down structure, trace			• • •	sk, boom truck (2). Ne	SWITTCH I.
ĺ					
	,				
OSHA Recordable Safety I	Incidents:		Reporte	ed by:	Time:



PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third We	DATE:_	Tuesday	, November 2	9, 2011			
PO & Work Order NO. :	3000078	050 / 10035803	MAIN CONTR	ACTOR:	Cache Valle	y Electric		
Crew Start Time:	6:55	Crew Stop Time:	17:05		Tot Hrs mns:	10:10		
FCR Start Time:	6:40	FCR Stop Time:	17:40		Tot Hrs mns:	11:00		
Use military time format 00:00		· Orrecep Inno.	17.40		-	11.00		
Ose military time format 60.00	,							
WEATHER CONDITIONS:		Hazy, 28 degree	es in AM, 50 degre	es in the	РМ			
DESCRIPTION: (work perf								
R&R set up four monitors. New excavation in the CZ (clean zon placement of six additional spre spread footings (C, C, and F fdr area on the west side of the tran Wilding = 1.	e). They also exca ad footings inside to s) in the south end	vated along the west side and he clean zone. CVE fab crew p of the work area. Wilding Eng	the north side of the placed fon n s and ar perfomed compact	transforme ochor bolts ion tests or	er pad to provide for the pedestal	e grades for s of the five avated/filled		
F WORKING IN ENERGIZE	D SUBSTATION	<u>:</u>						
Dispatcher login, name and time	e: Barry Niels	on 0650						
Dispatcher logout, name and tin								
DISCREPANCIES:			IMMEDIATE CO	RRECTIV	E ACTION TA	KEN:		
Last week we found two fdns in the	old sub that were und	der the yard rock and not included	CVE to provide CO for					
in the details of concrete to be remo								
No resolution on the 20' ground rod	issue.		CVE to provide per u	nit price to d	rIII concrete.	l l		
Found a conflict between the concre	ete grades of the xfm	fdn and the "N" fdns north of the	Notified Brent Wiggin	s and we ha	ve heen instructe	d to move the		
xfmr. The pad for the "N" fdn exten	ds under the xfmr fdr	and the too of the pad for the "N	"N" fdn 3.5" to the no	rth and to ins	sure proper cleara	ance for the		
fdn and the bottom of the xfmr floor	are in conflict with ea	ch other. This conflict is a result of	rebar. This same ad	justment will	need to be made	on the west		
both a RMP design issue and a field	d change made by C\	<u>/E</u>	xfmr as well.					
			:					
DELAYS OR LOST TIME E	NCOUNTERED:							
EQUIPMENT (workirig, delivered, idle): CVE fab crew: Portable toilet (2), forklift, 1 dumpster, office trailer, conex, exclusion zone conex (2), tool trailer, crew tmck, boom truck (2). Newman: portable wash-down structure, trachoe (2), mini-ex, txobcat, power washer, water truck, compactor, backhoe, pavement breaker.								
OSHA Recordable Safety I	ncidents:		F	Reported I	bv:	Time:		
			·					
			+					
1								



PROJECT NAME: Third West Sub - Rebuild DATE: Wednesday, November 30, 2011 PO & Work Order NO.: 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric Crew Start Time: 6:55 Crew Stop Time: 17:10 Tot Hrs mns: 10:15 FCR Start Time: 6:35 FCR Stop Time: 17:25 Tot Hrs mns: 10:50 Use military time format 00:00 WEATHER CONDITIONS: Hazy to Partly Cloudy, mid-day rain - 34 degrees in AM, 40 degrees in the PM

Crew Start Time: FCR Start Time: Use military time format 00:00 **WEATHER CONDITIONS:** DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. The EZ is active this morning as we will be removing the contaminated material that has been stored just south of the new control building. Newman will be using one of their trucks to haul this material to clean harbor. After loading out the truck, the EZ was deactivated and Newman started backfilling the east side of the transformer and around the pads for the five smaller spread footings and the circuit breakers. CVE fab crew is setting up forms and tying rebar for the C, D, and N foundations in the north part of the yard. Custom Fence crew modified the temporary fence that separates the energized yard from the work areas to provide RMP with access to the old control building, without technically being in the EZ. Wallace Enterprises, subcontractor to Trachte returned today and completed the items on their punch list. The list included adjusting the south door, installing a wall-pack light fixture on the west side of the building, crimping copper grid wire inside the building, anchoring the YTC cabinets to the west wall, and installing a ground in the west AC panel on the south CVE fab crew = 5, Newman = 4, R&R = 1, Wilding = 1, Wallace Ent. = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Jim Bovman 0635 Dispatcher logout, name and time: Gus Montanez 1720 DISCREPANCIES: **IMMEDIATE CORRECTIVE ACTION TAKEN:** Last week we found two fdns in the old sub that were under the yard rock and not included CVE to provide CO for removing the additional concrete. n the details of concrete to be removed from the site No resolution on the 20' ground rod issue. CVE to provide per unit price to drill concrete. Identified an additional retaining wall that is below grade and does not show on the Demo Will excavate to determine dimensions. Two conduit sleeves are called for in the transformer fdn north wall (toward east end). Can' Asked Roger Fuerst for clarification. find where there is any conduit called out on the conduit plan DELAYS OR LOST TIME ENCOUNTERED: EQUIPMENT (working, delivered, idle): CVE fab crew: Portable tojlet (2), forklift, 1 dumpster, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck (2). Newman: portable wash-down structure, trachoe (2), mini-ex, bobcat, power washer, water truck, compactor, backhoe, pavement breaker.

OSHA Recordable Safety Incidents: Reported by: Time:



PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	E: Third West Sub - Rebuild			DATE: Thursday, Decem					
PO & Work Order NO. :	3000078056	0 / 10035803	MAIN CONT	RACTOR	Cache Valle	y Electric			
Crew Start Time:	6:50	Crew Stop Time:	17:10)	Tot Hrs mns:	10:20			
FCR Start Time:	6:40	FCR Stop Time:	17:20)	Tot Hrs mns:	1 0 :40			
Use military time format 00:00		, , , , , , , , , , , , , , , , , , , ,			_				
	₹								
WEATHER CONDITIONS:		Partly Cloudy to S	Sunny, strong wi	nds, 35 de	grees				
DESCRIPTION: (work perform	ned, general cor	nments, instructions to	contractor, # o	of crew me	mbers onsite	.)			
because of concerns with the wind visqueen on the fence that separat impacted by the heavy winds. CVI transformer pedestal later today. Corew = 5, Newman = 3, R&R = 1, V	es the energized ya E fab crew is cleanir CVE fab crew compl	ard from the old control build ng off the floor inside the oil leted placement of the botto	ling and reinforcing containment in pro	g the existin eparation fo	g visqueen that r placing rebar fo	has been			
IF WORKING IN ENERGIZED Dispatcher login, name and time:	Manny Luhaun		•						
Dispatcher logout, name and time:	???????????	1725							
DISCREPANCIES:			IMMEDIATE CO						
Last week we found two fdns in the old in the details of concrete to be removed		the yard rock and not included	CVE to provide CO	tor removing	the additonal cond	crete.			
No resolution on the 20' ground rod iss			CVE to provide per	unit price to	drill concrete.				
Identified an additional retaining wall th Plan.	at is b e low grade and	does not show on the Demo	Will excavate to de	termine dime	nsions.				
Two conduit sleeves are called for in the find where there is any conduit called conduct the DELAYS OR LOST TIME ENC	out on the conduit plan		Asked Roger Fuers	t for clarificat	ion.				
EQUIPMENT (working, delive CVE fab crew: Portable toilet (2), forkli portable wash-down structure, trachoe	ered, idle): ifl, 1 dumpster, office t e (2), mini-ex, botxcat,			avement brea	ker.				
OSHA Recordable Safety Inc	idents:		•	Reported	by:	Time:			
			<u>-</u>						



PACIFICORP OPERATIONS - Field Construction Representative Daily Log PROJECT NAME: Third West Sub - Rebuild DATE: Friday, December 2, 2011 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric PO & Work Order NO.: Crew Start Time: 6:55 Crew Stop Time: 17:10 10:15 Tot Hrs mns: FCR Start Time: 6:45 17:15 FCR Stop Time: Tot Hrs mns: 10:3**0** Use military time format 00:00 **WEATHER CONDITIONS:** Sunny to Overcast, 20 degrees in AM, 40 degrees in PM DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. EZ has not been active all day. CVE fab crew is tying rebar and setting up forms for the transformer pedestal. Newman is backfilling along the south side of the transformer and around the south spread footings. CVE fab crew = 4, Newman = 3, R&R = 1, Wilding = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Manny Luhaun 0645 Dispatcher logout, name and time: Manny Luhaun 1720 **DISCREPANCIES:** IMMEDIATE CORRECTIVE ACTION TAKEN: Last week we found two fdns in the old sub that were under the yard rock and not included CVE to provide CO for removing the additional concrete. n the details of concrete to be removed from the site No resolution on the 20' ground rod issue. CVE to provide per unit price to drill concrete. Identified an additional retaining wall that is below grade and does not show on the Demo Will excavate to determine dimensions. Two conduit sleeves are called for in the transformer fdn north wall (toward east end). Can't Asked Roger Fuerst for clarification. find where there is any conduit called out on the conduit plan DELAYS OR LOST TIME ENCOUNTERED: EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (2), forklift, 1 dumpster, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck (2). Newman:

portable wash-down structure, trachoe (2), mini-ex, boticat, power washer, water truck, compactor, backhoe, pavement breaker.



A DIVISION OF PACIFICORP

OSHA Recordable Safety Incidents:

Russ Johnson

Reported by:

Time:

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third Wes	t Sub - Rebuild	DATE: Saturday, December 3, 20					
PO & Work Order NO. :	30000780	50 / 10035803	MAIN CONTRACTOR	: Cache Valle	y Electric			
Crew Start Time:	7:00	Crew Stop Time: FCR Stop Time:	15:00	_Tot Hrs mns: _ _Tot Hrs mns: _	8:00 0 :0 0			
Use military time format 00:00								
WEATHER CONDITIONS:		Sunny to Overcast, 2	0 degrees in AM, 40 degr	ees in PM				
DESCRIPTION: (work perform	ned, general co	omments, instructions to	contractor, # of crew m	embers onsite.	 .)			
R&R set up four monitors. EZ rema								
transformer pedestal. Newman did	not work today.	CVE fab crew = 4, R&R =	1.	•				
·			•					
IF WORKING IN ENERGIZED	SUBSTATION:							
Dispatcher login, name and time:	1							
Dispatcher logout, name and time:				,				
DISCREPANCIES:			IMMEDIATE CORRECT	VE ACTION TA	KEN:			
Last week we found two fdns in the old		r the yard rock and not included	CVE to provide CO for removing	g the additonal cond	cret e .			
in the details of concrete to be removed No resolution on the 20' ground rod issues			CVE to provide per unit price to	drill concrete				
livo resolution on the 20 ground rod issu	ie.		CVE to provide per unit price to	dilli concrete.				
Identified an additional retaining wall the Plan.	at is below grade ar	nd does not show on the Demo	Will excavate to determine dim	ensions.				
i		•						
Two conduit sleeves are called for in the find where there is any conduit called o			Asked Roger Fuerst for clarifica	ation.				
DELAYS OR LOST TIME ENC	OUNTERED:			·				
		ę						
EQUIPMENT (working, delive	red, idle):			• .				
CVE fab crew: Portable toilet (2), forklii portable wash-down structure, trachoe	ft, 1 dumpster, offic			, ,	wman:			
OSHA Recordable Safety Inci	dents:		Reporte	d bv:	Time:			
The state of the s			- Topolie	 /.	1			





November 30, 2011

Laboratory Code: O Subcontract Number:

RES NA

Laboratory Report: Project # / P.O. #

RES **225**051-1 None **G**iven

Project Description:

Rocky Mtn. Power 3rd West Sub Station

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 225051-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101898-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 225051-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

Rocky Mtn. Power 3rd West Sub Station

Date Samples Received:

November 29, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 30, 2011

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter	
ID Number	ID N	ID Number Analy		Analyzed Volume Sampled		Sensitivity	Concentration	Loading	
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)	
3W-112811-S	EM	829940	0.0800	1024	ND	0.0047	BAS	BAS	
3W-112811-W	EM	829941	0.0800	1035	ND	0.0046	BAS	BAS	
3W-112811-N	EM	829942	0.0800	1035	, ND	0.0046	BAS	BAS	
3W-112811-E	EM	829943	0.0800	1033	ND	0.0047	BAS	BAS	

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

Due Date: 11-30 1 Due Time: 110

	Pagar: 303-601			NT					_	-				CC	ONTAC	41 T:	IFOF	RM/	ATION:		
Company: 12 & a Emploon membel	Сетрепу:			<u> </u>		Con	nect.	Dai	ie	20,	col	lex					Con		ادباك	m Kan	A/A
Address: 47 W 9005	Address:					Plw	ne:			e	and by l	~-J					Phor	ne:			
Sund . 114. 84070						Fex											Fex				
	L						page					035					Cell	pegel	8ગ	828-52	19
Project Number and/or P.O. \$:						Pm	al Del	n Chilli	rerabi	e emei	I Add	reta:									
Project Ossertphenia and on the Router 3th West Su	lo Station													<u> </u>							
ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm					F	REQU	E8T	ED	AN/	LY	318					VA	JD!	MA	TRIX CO	DE8	LAB NOTES:
PLM / PCM (TEM)RUSH (Same Day) X PRIORITY (Next Day)STANDARD								T	П			TT			Air=	A		B	ulk = B	
(Rush PCM = 2hr, TEM = 8hr.)		↓ ′				1		1	İ	П						Diet			·	aint = P	
CHEMISTRY LABORATORY HOURS: Weekdays: Sem - 8pm		4				1	Ι.			П	1					Soil :			+	pe • W	·
Uelal(s) / Oust RUSH 24 hr3-6 Day	*Prior notification is		ď			1				5	-	11	11				sw			= Food	
RCRAS / Metale & WeldingRUSH 8 day10 day	required for RUSH	Serie de	o s	l i	İ	8	1			1			<u>اچ</u>	n	DUNNE	g vvt	~~~		Ottier	Water = WW	
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Organica24 hr3 dayB Day MICROBIOLOGY LABORATORY HOURS: Weekdays: Bam - 6pt	——————————————————————————————————————	1 1	8 8		1	**	ļ		ł	8	_ }	Ę		<u>*</u>	 	T	T	T			
E.eoil O187:H7, Coliforms, 8.aureus24 hr2 Day	3-5 Day	Long report.		15		Ę	1			8		₩.	ان				İ				
Salmonells, Listeria, E.eoil, APC, Y & M 48 Hr3-8 Day	-	9		OSHA	8	2	l			‡ 1					ł			1		! !	
	_46 Hr3 Day9 Day		10 A		2		_	:	*	늴	5 5	5		Ä			Ì				
**Turneround times establish a leboratory priority, cubject to laboratory volunts and a		T g	3 5	7400B,	Respi	₹ ₹	E	7 6	Ëİ.	S	8 4	4	회회	<u> </u>	9						
apply for effectiours, weekends and holidays.** Special Instructions:		Short report,	AFERA,	7400A	Total.	- Anabyte(s) TCLP, Welt	ORGANICS - METH	Satmonette	Listeria: +	S. P.	‡	Se :	±	2	V V V	Mathrix Code	# Containers				EM Number (Letsgretor
		[· '	1 😤	4 · 1		METALS RCRA 8,	3	E	9 4	8	8 8	Sa		Ï	Sample V (L) / Area	ž	8	_	Data	Time	(/ee Only)
Client sample ID number (Sample ID's must be unique	9)	쿭	世の	2	ISNO	<u> </u>	8	***		CRO	BOL			<u> </u>	83	3	O	1	oliacted mydd/yy	Collected hiv/mm e/p	
1 3W-112811-S			X						<u> </u>			\prod			1,02	M		u	પશેષ		829940
2 3W-112811 -W								Ш			\perp				1.039		Ĺ.,				41
3 3W-112811-N		Π									I				1.035	\prod					42
4 3W-112811- E			1												1,03	3	L		•		43
5			}													T					
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10								\prod	7	77	\top	\sqcap	\top			T					
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NOTE: RD will enelyse incoming samples being upon infogsal for received and will not de enelysis as indicated on this Chain of Busicoty and consiliute an analytical services aproan	reasonable for expressor or orderions in a	edeule	done res	ultina t	trom ti	he Ineco	ute cy	ot orig	jinej d mult iz	ate. B	y eigr At mo	ing ci t	int/cem;	p erty re p	orenentelji 18	/e egi	eee th	at et	bimselon of	tre following se	mples for requested
analysis as indicated on the Chain of duslooy state consultate an analysical services appear		70, 10	016 to 00	ii day ve	MI PE			-r		1.10	1110		instanti e	al cital A							·
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Laboratory Use Only Received By:		A·				Carrie	r.	F	ے _	-01	Æ	X			Ta	mp.	(F*)		Y	ea/No Y	es / No Yea / No
Results: Contact Dave Phone Email Fax Date	1-30 Time 1:32P Inf								_	mail	_				Date	Ĺ	1/3	υŽ	// Tim	• 350	Initials el
Contact 1000 110 110 110 110 110 110 110 110 1	11-30 Time 1:32P Init	ila lak	<u>~\dc</u>	ontact	<u> </u>			Pho	na E	mel	Fa	X			Date		<u>'</u>		Tim		Initiels
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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

A =	Amosite	F =	Fiber
An =	Anthophyllite	B =	Bundle
C =	Chrysotile	C =	Cluster
Cr =	Crocidolite	M =	Matrix
T =	Tremolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

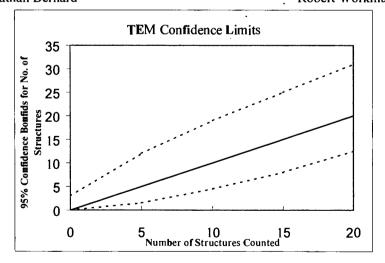
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	1 24 C
Sample Type (A=Air, D=Dust):	LA
Air volume (L) or dust area (cm2)	1024
Date received by lab	11-29-11
Lab Job Number:	22565
Lab Sample Number:	829940

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

	1
Analyzed by	/11+
Analysis date	11-30-11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	温め。
Counting rules (ISO, AHERA, ASTM)	I-AI+
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Grid	Gna Opening	Туре	Primary	Total	Length	Width	identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	E36	DV				, 1	£ ,			:				
	E3-3	dy					,			•				
	c3-6	ND.		Piec	A:6	0%	intact	5-78	de	6-5				¥
	C4-1	2		Pier	B1	-Pi	or A					·		
B	164-6	DN												
	K4-3	NS									* ** *			
	63-1	M				1/								35.
	F3-4	ND				1		×						
	ii .													107

Client :	
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	Hose
Date received by lab	111-29-K
Lab Job Number:	225351
Lab Sample Number:	18/29941

Analyzed by	HATA LE
Analysis date	11-36-11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	M'S'
Counting rules (ISO, AHERA, ASTM)	A A
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Fraction of primary filter used		
Total Resuspension Volume (ml)	1	
Volume Applied to secondary filter (ml)		

Grid	Grid Opening	Structure	No. of St	tuctures	Dimer	nsions	Identification	Mineral Class	٠.	•		1 = y	es, blank	= no
One	Gild Opening			Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS				
A	63-3	NO					<i>i</i> .		22 24					
	F3-6	ND												
	F3-3	ND		Pizot	4:90	Poi	ntaci	5-74	de	bas	•			
	E3-6	DY		Pier	B= 4	20.9	ntac	2 5-79	00	Pe.b	5			
B	H2-3	ND				,								
	62-6	an						/		7				
	62-3	N						/						
,	F26	ND						1						,
				·	- 1			1						

Laboratory name:

Magnification
Grid opening area

Primary filter area

Secondary Filter Area

100 KV

0.28 um

0.056 um

0.01

Instrument

Voltage (KV)

Scale: 1L =

(mm2)

(mm2)

(mm2) QA Type

Laboratory name:	REI
instrument	JEOL 100 CX N/S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	建设的保护
Sample Type (A=Air, D=Dust):	Artis
Air volume (L) or dust area (cm2)	1035
Date received by lab	ill is real time.
Lab Job Number:	22535
Lab Sample Number:	8729947

Analysis date	11(30
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	対る
Counting rules (ISO, AHERA, ASTM)	一个日
Grid storage location	Month Ana
Scope Alignment	Date Ana

Analyzed by

F-Factor Calculation (Indirect F	reps O	nly):	
Fraction of primary filter used			
Total Resuspension Volume (ml)			

Volume Applied to secondary filter

G	rid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
			Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
F	7	F5-4	ND					2	** .		•				
		F51	ND												
		ES-4	ND.		Piar	A: Le	09	intac	+ . 3-5	V de	ebns				
		ES-1	an		Pero	B:	70%	o. Linta	x. 3-5	of d	leb.	2	,		
· J	B	H3-6	an				1								
		+13-3	ND												
		63-6	ND				/		1						
		63-3	ND				· .	. 1 7 1		1 X 1					
		·	·		·	X								•	

Laboratory name:	REI
Instrument	JEOL 100 CX N/S
Voitage (KV)	100 KV
Magnification	(20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	推問語為傳播性
QA Type	

Client:	
Sample Type (A=Air, D=Dust):	HE WITH
Air volume (L) or dust area (cm2)	生では多い。
Date received by lab	41V 29 = 1
Lab Job Number:	22505
Lab Sample Number:	87299HS

Lab Job Number:	LANOS H
Lab Sample Number:	8729943
F-Factor Calculation (Indirect F	Preps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (mi)	

Analyzed by	ALL
Analysis date	10/28/2011
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	建 公安/世
Counting rules (ISO, AHERA, ASTM)	操教 性
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	ructures	Dimer	nsions	Identification	Mineral Class		7.		1 = y	es, blank	= no
Grid	Grid Opening	Туре	Primary	Total	Length	Width	identification.	Amphibole	С	NAM	Sketch/Comments		Photo	EDS
A	F4-6	ND			. ,	. '								
	F4-3	ND					** **			, ,				
	E4-6	ND		Piec	A: (209	ntac	× 5%	del	ens				
	E43	DN		Pian	B-1	Pa	ct.							
B	H5-6	ND				1					ř			
	H5-3	ND												
	65-6	M												, .
	653	ND			4	1			1,7				,	
,					1	ν. 							•	

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{\text{IL}}{\text{1000cc}}$

Filter loading, s/mm² = # Asbestos stmctures Area Analyzed (mm²)

GO = TEM grid opening



December 1, 2011

Laboratory Code:

res_.

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 225094-1 None Given

Project Description:

None Given

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 225094-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 225094-1

Client:

Client Project Number / P.O.: None Given

R & R Environmental

Client Project Description: Date Samples Received:

None Given

November 30, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 30, 2011

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter	
ID Number	ID Number		Analyzed Volui Sampl		Asbestos Structures Detected	Sensitivity	Concentration	Loading	
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)	
3W112911-N	EM	830133	0.0700	1444	ND	0.0038	BAS	BAS	
3W112911-S	EM	830134	0.0700	1140	ND	0.0048	BAS	BAS	
3W112911-E	EM	830135	0.0700	1140	ND	0.0048	BAS	BAS	
3W112911-W	EM	830136	0.0700	1146	ND	0.0048	BAS	BAS	
Blank	EM	830137	NA	0	NA				
Blank	EM	830138	NA	0	NA				

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

Due Date:_	1211
Due Time:	\$5m.



'n	ayc_	 u, _	

Company: CAT EMMYAMMAND TOC Address: 47 M. Grand P. C. E. Project Number and P. D. D. Project Number and P. D. D. Project Number and P. D. D. Project Number and P. D. D. Project Number and P. D. D. D. Project Number and P. D. D. D. D. D. D. D. D. D. D. D. D. D.	ed EM Number (Laboratory Usa Only) 3 \$ 1 3 7
Address: 47 W. 9800 S. W. S. Final Body S. From Scanning P.O. 8. From Cell Progent Number endor P.O. 8. From Cell Progent Number and are not provided and sees subject to leboratory sample volume and are not guaranteed. You will be notifited in Special instructions: Special instructions: From Cell Progent Scanning Progent Number (Sample ID's must be unique) ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm REQUESTED ANALYSIS Progent Description, Coding Progent Programment Code Scanning Programment Code S	ed EM Number (Laboratory Usa Only) 3 3 1 3 7
Froject Number and/or P.O. R Project Description/Location: ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm REQUESTED ANALYSIS ALID MATRIX CODES: ALID MATRIX	ed EM Number (Laboratory Usa Only) 3 3 1 3 7
Requested Description Location. ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm REQUESTED ANALYSIS VALID MATRIX CODES AIr = A Bulk = B Dust = D Dust = D Paint = P West Sam - Spm Metal(s) / Dust RUSH (24 hr3-5 Day "Prior notification is required for RUSH (urrarounds." Organics "Aultylas turnarounds are subject to leboratory sample volume and are not guaranteed. You will be notifited if it delays are expected. Additional fees apply for afterbours and tool days for all analysis types." Special instructions: Client sample ID number (Sample ID's must be unique) AIR = A Bulk = B Dust = D Paint = P Vol D	ed EM Number (Laboratory Usa Only) 3 3 1 3 7
ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm RUSH (Same Day) PRIORITY (Next Day) _STANDARD (Rush PCM = 2nr, TEM = 6hr.) CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm	ed EM Number (Laboratory Usa Only) 3 3 1 3 7
ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm RUSH (Same Day) PRIORITY (Next Day) STANDARD (Rush PCM = 2hr, TEM = 6hr.) CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm Metal(s) / Dust RCRA 8 / Metals & Welding Fume Scan / TCLP "Aullysis turnarounds are subject to leboratory sample volume and are not guaranteed. You will be notifited if delays are expected. Additional fees apply for afferhours and holddays for all analysis types." Special Instructions: Client sample ID number (Sample ID's must be unique) REQUESTED ANALYSIS VALID MATRIX CODES AIr = A Bulk = B Dust = D Dust = D Soil = S Wips = W Dinking Water = DW Waste Water = DW Waste Water = DW Waste Water = DW Other = O "ASTM E1792 approved wipe media on or publication is required for RUSH turnarounds." Today are expected. Additional fees apply for afferhours and bolddays for all analysis types." Special Instructions: Client sample ID number (Sample ID's must be unique) Alice A Bulk = B Dust = D Dust = D Water Bold Aric A Bulk = B Dust = D Vigo Collected Colle	ed EM Number (Laboratory Usa Only) 3 3 1 3 7
PLM / PCM_TEM	ed EM Number (Laborator) Usa Only) SSE 137
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm Metal(s) / Dust RUSH 24 hr. 3-5 Day Prior notification is required for RUSH turnarounds." Organics 24 hr. 3 day 5 Day Organics 24 hr. 3 day 5 Day Organics Additional fees apply for afterhours and hotidays for all analysis types." Special instructions: Special instructions: Client sample D number (Sample ID's must be unique) Time Collected mindred Collected mindred Collected mindred Collected mindred Collected mindred Collected mindred Collected mindred Collected mindred Collected mindred Collected mindred Collected Collected mindred Collected Collected mindred Collected	ed EM Number (Laboratory Usa Only) 3 \$ 1 3 7
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm Metal(s) / Dust RCRA 8 / Metals & Welding Fume Scan / TCLP Organics 24 hr 3 day 5 Day "Allalysis tumarounds are subject to leboratory sample volume and are not guaranteed. You will be notified if delays are expected. Additional fees apply for afferhours and todidays for all analysis types." Special Instructions: Client sample ID number (Sample ID's must be unique) Soil = S Wips = W Drinking Water = DW Waste Water = WW Other = O "ASTM E 1792 approved wipe media only analysis types." Special Instructions: Client sample ID number (Sample ID's must be unique) All 3	ed EM Number (Laboratory Usa Only) 3 \$ 1 3 7
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm Soil = S Wips = W	ed EM Number (Laboratory Usa Only) 3 \$ 1 3 7
RCRA 8 / Metals & Welding Fume Scan / TCLP Organics	ed EM Number (Laboratory Usa Only) 3 \$ 1 3 7
RCRA 8 / Metals & Welding Fume Scan / TCLP Organics	ed EM Number (Laboratory Usa Only) 3 \$ 1 3 7
Fume Scan / TCLP RUSH _ 5 day _ 10 day required for RUSH turnarounds." Organics _ 24 hr 3 day _ 5 Day "Asialysis turnarounds are subject to leboratory sample volume and are not guaranteed. You will be notifited if delays are expected. Additional fees apply for affertours and hotildays for all analysis types." Special instructions: Client sample ID number (Sample ID's must be unique) Client sample ID number (Sample ID's must be unique) Client sample ID number (Sample ID's must be unique) Client sample ID number (Sample ID's must be unique) All 2	ed EM Number (Laboratory Usa Only) 3 \$ 1 3 7
"Aualysis turnarounds are subject to leboratory sample volume and are not guaranteed. You will be notifited if delays are expected. Additional fees apply for afterhours and holidays for all analysis types." Special instructions: Client sample ID number (Sample ID's must be unique) 1 3 W 1 1 2 9 1 (- W Watta	ed EM Number (Laboratory Usa Only) 3 \$ 1 3 7
"Aualysis turnarounds are subject to leboratory sample volume and are not guaranteed. You will be notifited if delays are expected. Additional fees apply for afterhours and holidays for all analysis types." Special instructions: Client sample ID number (Sample ID's must be unique) 1 3 W 1 1 2 9 1 (- W Watta	ed EM Number (Laboratory Usa Only) S S S I S P C S S L
Special Instructions: Client sample ID number (Sample ID's must be unique) 1 3 W 1 1 2 9 (ed EM Number (Laboratory Usa Only) S S S I S P C S S L
Special Instructions: Client sample ID number (Sample ID's must be unique) 1 3 W 1 1 2 9 ((- H	ed EM Number (Laboratory Usa Only) S S S I S P C S S L
Special instructions:	ed EM Number (Laboratory Usa Only) S S S I S P C S S 4
Client sample ID number (Sample ID's must be unique) 1 3 W 1 1 2 9 (1 - M	ed EM Number (Laboratory Usa Only) S S S I S P C S S 4
1 3 W 1 1 2 9 1 1 - N 11/29 11 29 11	Uaa Only) 3
1 3 W 1 1 2 9 1 1 - N 11/29 11 29 11	7 34
2	
4	
5 Blank	35
8	35
	1 1 1 137
	38
12	
13	
Number of samples received: (AddItional samples stratt-se listed on attacted long form.)	
NOTE: REI will analyze Incoroning agriphes based apign intopriation received and will not be responsible for errors or omissione to galculations resulting from the inaccuracy of original date. By signing dient/company representative agr	es that tubmission of the
following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, faiture to comply with payment terms may result in a 1.8% more	hly interest surcharge.
Relinquished By: 11 Date/Time: 1800 Sample Condition: On Ice	Sealed Intact
Laboratory Use Only Received By: Date/Time: 1/-365-(1 & 85.00 Carrier: Polity Temp. (F°) Y/N	Y/N Ø/N
	Time/145 Initials &
	1112
(MS8)	Time Initials

thalest & 8002 7005 0391

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type A = Amosite An = Anthophyllite C = Chrysotile Structure Types F = Fiber B = Bundle C = Cluster

Cr = Crocidolite T = Tremolite

ND = no structures detected

M = other structure associated with a matrix

M = Matrix

NAM = Non Asbestos Mineral

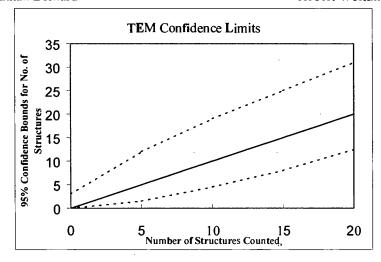
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Month Analyzed

Date Analyzed

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N_S
Vohage (KV)	100 KV
Maanification	(208X 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	RAR
Samole Tyoe (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1144
Date received by lab	11-30-11
Lab Job Number:	225094
Lab Sample Number:	830133
Lab Sample Number:	830133

(A = l = dl = e + e = b = d)
iA=IndIrect, ashed)
Counting rules
(ISO, AHERA, ASTM)
Grid storage location
Scope Alignment
•
,

Analysis date
Method (D=Direct, l=indirect,

Analyzed by

F-Factor Calculation (Indirect Pi	reps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

	Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class			. 6	1 = y	s, blank	= no
		J 575	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EOS
	_A	H3-6	ND					•					,		
		H3-3	ND		 						- · · · ·				
		63-6	ND		Piec	A :	le0%	intact	7-109	I de	65	·			
		63-3	ND		Pie		70,	onta.	+ 7-10	2/20	le b	as			
11/30	B	E378-4	DN												
٠,٥		H5-1	22				~								
		65-4	4		-										
							1		·				-		
								•							
		·							,						

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	(20KX 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)
QA Type	

Client:	R412
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1140
Date received by lab	11-30-11
Lab Job Number:	225094
Lab Sample Number:	830134

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secontary filter (ml)	1

Analyzed by] AH
Analysis date	11-30-11
Method (D=Olrect, l≖Indlrect, IA=Indlrect, ashed)	F. Dir.
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class	Mineral Class			1 = yes, blank = no		
,		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F3-60	AN			,		•						,	
,	F3-3	2		, 									·	-
	E3-6	44		P	ect:	leo	Pointa	ct 7%	de	6/S				
	E3-3	, <u>N</u>		C		~Pix	A							,
B	15-1	ND												
	K5-4	25				,								
	K5-1	NΔ		٠			}							
						8		•						
											,			

Laboratory name:	REI
Instrument	JEOL 100 CX N/S)
Voltage (KV)	100 KV
Magnification	(200€X 10KX
Grkl opening area (mm2)	0.011
Scale: 1L=	0.28 tim
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	R#12
Sample Type (A=Alr, D=Dust):	A A
Air volume (L) or dust area (cm2)	1140
Date received by lab	11-30-11
Lab Job Number:	225094
Lab Sample Number:	830135

Scope Alignment	Date Analyzed
Grid storage location	Month Analyzed
Counting rules (ISO, AHERA, ASTM)	AH
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	I B
Analysis date	11-30-11
Analyzed by	AH

F-Factor Calculation (Indirect Pre	ps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to sacondary filler (ml)	

Grid	Grid Opening	Structure	No. of St	uctures	Dime	nsions	Identification	Mineral Class			1 = yes, blank = no			
	C.i.e opening	Туре	Primary	Total	Length	Width	- Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K5-6	ND				•	•					_		
	145-3	M		•										
	HS-6	ND		Pro	pA;	80	do inta	ct 5-	7.4	dek	PoS		,	
	45-3	UN		B	B.	rP,	e A	,						
B	F3-3	M					V	è		:				
	E3-6	ND												
	E3-3	M			·						·			
														
•	·													

<u> </u>	
Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	(2010x 1010)
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 dth
Scale: 1D =	0.056 urn
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	646
Sample Type (A=Air, D=Dust):	1
Air volume (L) or dust area (cm2)	1146
Date received by lab	11-30-11
Lab Job Number:	225094
Lab Sample Number:	830 36

F-Factor Calculation (Indirect Pro	eps Only):
Fraction of primary filter used	
Total Resuspension Vokune (ml)	
Volume Applied to secondary filter (ml)	

Scope Alignment	Date Analyzed
GrM storage location	Month Anatyred
Counting rules (ISO, AHERA, ASTM)	AH.
Method (D=Oirect, I=Indirect, IA=Indirect, ashed)	5
Analysis date	11-30-11
Analyzed by	AH

Grid	Grid Opening Structure Type			No. of Structures		nsions	Identification	Mineral Class				1 = yes, blank = no		
			Primary	Total	Length Wkith			Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EOS
A	E6-4	W					•		<u>:</u>				,	
	E10-1	41												
	Clo-4	ND		Pre	A:	70	fointo	ct 5-	7%	del	S			
	(6-1	25		Pa	B:	1	intac	·	7%	le	bac			
3	Fle-1	ND		V					. (,	1/1			
	E6-4	ND											·	
	E6-1	2									10			
												-		
		,												•

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, $mun^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



December 2, 2011

Laboratory Code: Subcontract Number:

RES NA

Laboratory Report: Project # / P.O. #

RES 225202-1 None Given

Project Description:

Pacificorp 3rd West

Substation

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Custonier.

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 225202-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 225202-1

R & R Environmental

Client:

Client Project Number / P.O.: None Given

Client Project Description: Date Samples Received:

Pacificorp 3rd West Substation

December 1, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

December 2, 2011

Client			Area	Air	Number of	Analytical	Asbestos	Filter	
ID Number	ID Number		Analyzed	Volume	Asbestos	Sensitivity	Concentration	Loading	
				Sampled	Structures				
					Detected				
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)	
3W113011-N	EM	830771	0.0700	1110	ND	0.0050	BAS	BAS	
3W113011-S	EΜ	8 3 077 2	0.0700	1108	ND	0.0050	BAS	BAS	
3W113011-E	EM	830773	0.0700	1110	ND	0.0050	BAS	BAS	
3W113011-W	EM	830774	0.0700	1114	ND	0.0049	BAS	BAS	
Blank (Not on Grig. COC)	EM	8 3 0775	NA	0	NA				
Blank (Not on Grig. COC)	EM	8 3 0776	NA	0	NA				

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010

Effective Filter Area = 385 sq mm

DATA QA

Due Date:_	12.2.11
Due Time:	924a



Ĵс	RES 225202
Paul	

SUBMITTED BY;	INVOICE TO: (IF	DIFFERENT)		CONTACT	T INFORMATION:	
Company: RIK Environmental Inc	Company:		Contact Dave	20stelle	Contact:	
Address: 44 W. 9000 S. #7_	Address:		Phone: GOL.54	11.1035	/ Phone:	
SANGULUT 04099			Fex		Fex	
			Cali/pegar.		Cell/pager.	
Project Number ana/or P.O. #:			Final Data Delivarable Em	ail Address:		
Project Oes at pilothiocation: Pacificorp 10 37 West	Sustation		DAVER	Prenvi	PO COM	
ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		REQUESTED A	NALYSIS	VALID MAT	TRIX CODES	LAB NOTES:
PLM / PCM / TEM RUSH (Same Day) PRIORITY (Next I	Day)STANDARD	Ouant,	δ 48 ,	Ajr = A	Bulk = B	
(Rush PCM = 2hr, TEM = 6hr.)			RCRA 8,	Dust = D	Paint = P	
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm		[∵ ≯&	" gg	Soil = S	Wipe = W	
Metal(s) / Duet 'RUSH 24 tir3-5 Day		Boint 150, +/		Drinking W	Vater = DW	
DODA & (Marin & Middin -	**Prior notification is		8260	Waste Wa	ater = WW	
RCRA 8 / Metals & Welding RUSH 5 day10 day -	required for RUSH	Long report, 7402, Ic, ISO-Indin B, OSHA virable		Othe	er = O	
rune scan / 10EF	turnarounds.**	Bug = Si o egg	MTBE, 8	ASTM E1792 appro	ved wipe media only**	
Organics 24 hr 3 day5 Day		Level II. 7 Inovac, IS/ 74008, OX Respirable	ا خانما			
"Arialyais turnarounds are subject to jaboratory sample volume and are not gr	uarantead. You will be notifited		BTEX,	.]]]		
If delays are expected, Additional fees apply for afterhours and holidays		Short rep. AHERA, ant. Micr. 7400A, 7 Total, F.	출 · 축	اي اور		
		Short re AHERA Jant, Mi 7400A, Total, S - An	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Code ainers	Date Time	
Special Instructions:			ER AN S	₹ ĕ Ë co	ollected Collected	EM Number (Laborator)
Client sample ID numbet (Sample ID's must be uniq	ue)	PLM - S TEM - A Semiqua PCM - 7 DUST -	TCLP. Welding F. ORGANICS - BTE OTHER - Sample Volume	(L) / Area Matrix Code # Containers	m/do/yy tıh/mm a/p	Use Only)
134113011-11		AHERA		110 4		@3m221
2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7				1001		72
3				1101		1 75
4		47		144	···	1 2 4
5 37						1
6 to land on or or or				- - - 		1 3
7				- - - - 		
8						
	 					
10						
						
12	 					
13		 				
	llional samples strall be listed on	attached long form.)				
NOTE: REI will analyze incoming tampths based upon information received and will no fdkiwling samples to request to a syste as indicated on this Opein of Custody stiel	t be responsible for errors or omissions in	calculations resulting from the	inaccuracy of original data, i	By signing dient/comp	any representative agraes	that submission of tile
re-running warmproof per respectation of culture and influence of units Chall of Custody sitely	s (- A CONTRACTOR CONTRACTOR	· A A	in paymont tomis ma	y roser in a 1.070 monthly i	tor. out. det outs Box
Relinquished By:	7 UI	30 Date/Time:	1880	Sample Conditio	on: On Ice Sea	aled Intact
Laboratory Use Only	ate/Time: D-(-)(rier Fally	Temp. (F ⁴)	Y/N Y/	IN CYN
Results: Contact Page Phone Email Fax Date	Time Initi	als Contact	Page Phon	Email Fax	Date 2-2 Tim	ne am Initials av
Contact Page Phone Email Fax Date	Time Initia	als Contact	Page Phon	e Email Fax	Date Time	ne Initials

Spalenof 4: 86 22 7625 0369

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

Α	=	Amosite	F =	Fiber
An	=	Anthophyllite	B =	Bundle
C	=	Chrysotile	C =	Cluster
Cr	=	Crocidolite	M =	Matrix
T	=	Tremolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

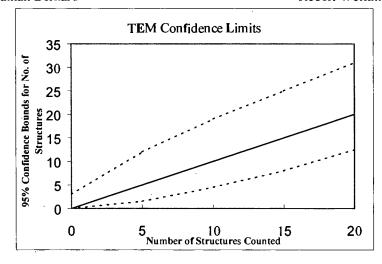
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI SERVICE
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	PAR
Sample Type (A=Air, D=Dust):	
Air volume (L) or dust area (cm2)	Hill .
Date received by lab	12/471
Lab Job Number:	225202
Lab Sample Number:	830941

F-Factor Calculation (Indirect P	nly):			
Fraction of primary filter used		i	14. T	
Total Resuspension Volume (ml)				
Volume Applied to secondary filter (ml)				

Analyzed by	TB.
Analysis date	12/2/1
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	. Dimei	nsions	Identification Mineral Class			1 = yes, blank = no				
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	4-1	ND												
	K4-1	ND			P	/	4 80	2 herri bont		5-7	of debris			
	14-1	ND			Pul	5 [3	90	c/ in he	1	5-7	& lebus			
	614-1	M						10 00 000	,			* pr		
B	F4-6	ND				.5		AB 12	2/4					
	E46	MD.						// /	/		,			
	C4-6.	W		•				7						
	~	*					W F		,	×				
100														
		F4.						*						

Laboratory name:	REI
Instrument	SUPPLY OF THE SU
Voltage (KV)	100 KV
Magnification	1 (1 4 3 X 1 1 1 K 1 1 1 1 1 K 1 1 1 1 K 1 1 1 K 1 1 1 K 1 1 K 1 1 K 1 1 K
Grid opening area (mm2)	0.01
Scale: 1L =	.0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385 4
Secondary Filter Area (mm2)	
QA Type	

Client:	TRACE.
Sample Type (A=Air, D=Dust):	STAR T
Air volume (L) or dust area (cm2)	1168
Date received by lab	4/1/1
Lab Job Number:	型出版型。中国
Lab Sample Number:	BEGERZ.

Fraction of primary filter used	1	
Total Resuspension Volume (ml)		
Volume Applied to secondary filter (ml)		

	THE STATE OF
Analyzed by	-3-1750s, 3000 s
Analysis date	12/2/4
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	. Dimer	nsions	Identification	Mineral Class	*			1 = y	es, blank	= no
1 1	One opening	Type	Primary	Total	Length	Width	100/idinodiloit	Amphibole	C	NAM	Sketch/Comments	Sketch	Photo	EDS
A	64-1	ND		•		· ./ ,								٠
	F4-1	M			Pap	5 4 4	B ~	70% in tre	1	50	& depris			
	E4-1	ND			' /	× 4,								
	C4-1	NO						18 12/2/						
B	64-4	M				:		11						
-	Fy-if	W		•			. /							
	E4-4.	M						· .		* .				
ite.					*.									
6							·							
													·	

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 ùm
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	REFRI
Sample Type (A=Air, D=Dust):	
Air volume (L) or dust area (cm2)	The contract of the second sec
Date received by lab	的星類次值數
Lab Job Number:	22度20之
Lab Sample Number.	建制能

Fraction of primary filter used	1	* .	(80)	
, , , , , , , , , , , , , , , , , , , ,	-			
Total Resuspension Volume (ml)				*
Volume Applied to secondary filter (ml)	1			

Analyzed by	建新
Analysis date	221
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	TE PAR
Counting rules (ISO, AHERA, ASTM)	EAH :
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification	Mineral Class	٠			1 = y	es, blank	= no
	Cito Opening	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K4-4	ND				<i>X</i> ,			,					
	44-4	ND			Pa	o A	90%	. a tuit	5%	del	112			. ,
	194-4	ND.			Pny	B	80%	6 in hut	5%	, det				
*	F4-4	ND					j.	,		ř				
B	H3-6	ND				:		\$\$ 12/2/u	•					
	63-6	ND		•			/	1			,			
	F3-6.	ND		-				•						
	,						*		× ·	iki			300	
						,					•			

	REI TEN
Laboratory name:	作業課期期間REI 語题明過時
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	IGARIE
Sample Type (A=Air, D=Dust):	
Air volume (L) or dust area (cm2)	
Date received by lab	建物的
Lab Job Number:	型点剪之621
Lab Sample Number:	对自己相比

F-Factor Calculation (Indirect P			-		-
Fraction of primary filter used	Ŀ		7	٠	
Total Resuspension Volume (ml)		٠.			
Volume Applied to secondary filter (ml)	\top	753			

Analyzed by	NO MARKET
Analysis date	Makk the to
Method (D=Direct, 1=Indirect, 1A=Indirect, ashed)	图: 均球形
Counting rules (ISO, AHERA, ASTM)	SE ANT SE
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	ructures	Dimer	sions	Identification	Mineral Class	٠. ٠			1 = yes, blanl		= no
	Grid Opening	Туре	Primary	Total	Length	Width	·	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H2-6	ND				٠,٠,	,						,	
	612-6	ND			P	W 5	Fx.B	-70/2. L	in f	57	6 de hors			
• • • •	F2-10	ND								9				
	EZ-6	NO		k				1	2/2/4					
B	F3-4	ND				:		- / / .	11.					
	E3-4	CN		•			. ,	/						
	C3-4.	M				* '								٠.
		2						3 .	:					
•						,					•			

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

• Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\# \ Asbestos \ Structures}{\# \ GO \ Counted} \times \frac{1}{Volume \ (L)} \times \frac{Eff. \ Filter \ Area \ (mm^2)}{Average \ GO \ area \ (mm^2)} \times \frac{IL}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



December 5, 2011

Laboratory Code: Subcontract Number:

res Na

Laboratory Report: Project # / P.O. #

RES 225287-1 None Given

Project Description:

Pacificorp - 3rd West

Substation

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 225287-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE |. TEM A|R FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 225287-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description: Date Samples Received:

Pacificorp - 3rd West Substation

December 2, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

December 2, 2011

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter	
ID Number.	ID Number		Analyzed Volume Sampled		Asbestos Structures Detected	Sensitivity	Concentration	Loading	
•			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)	
3W120111-N	EM	831449	0.0700	1104	NO	0.0050	BAS	BAS	
3W120111-S	ЕМ	831450	0.0700	1104	ND	0.0050	BAS	BAS	
3W120111-E	EM	831451	0.0700	1100	ND	0.0050	BAS	BAS	
3W120111-W	ЕМ	831452	0.0700	1102	ND	0.0050	BAS	BAS	
Blank	ЕМ	831453	NA	0	. NA				
Blank	EM	831454	NA	0	NA				

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

R	ES	225287

SUBMITTED BY:	INVOICE TO: (IF DIFFERENT)		T INFORMATION:
company: PHE Environmental, Inc.	Company:	Contact Dave Portelley	Contact;
Address: 47-W,90005, 42-2	Address:	Phone: 901 94 1035	Phona:
Sandy, UT 94070		Fax:	Fax:
Project Numbor and/or P.O. #:	<u> </u>	Cd/pager Final Data Deliverable Email Address:	Cell/pager
roject Description/Location: Facificarp-3th West Sylv	Waton	DAVER PRENVI	FO,COM
ASBESTOS LABORATORY HOURS: Weekdays:: 7am - 7pm	REQUESTED		RIX CODES
PLM / PCM / TEM RUSH (Same Day) PRIORITY (Next Day		o Air = A	Bulk = B
(Rush PCM = 2hr, TEM = 6hr.)		Air = A Dust = D	Paint = P
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm	oint C	Soil = S	Wipe = W
Metal(9) / Dust RUSH 24 hr 3-5 Day	So, 4 Point		Vater = DW °
RCRA 8 / Metals & Welding		0 2	ater = WW
Fume Scan / TCLP RUSH 5 day10 day	**Prior notification is required for RUSH tumarounds.**		er = O
Organics 24 hr 3 day5 Day	true on unit of the contract o		ved wipe media only**
Organics 24 hr 3 day 5 Day **AtlalySIs turnermends are eubject to laboratory earople volume end an not guar It delays are expected. Additional fees apply, for attendure and holidays for special instructione: Client sample ID rtumbe Client sample ID's triust be unique	M - Short repsee AHERA. mi-quent, Mc 7400A, ST - Total.	Weld Weld Cod Cod	Date Time ollected Collected hh/mm a/p Use Only)
113 W 120111-N	AHEZA		गा। ९३। वस्त्र
3		(100)	Si
		1027	47 52
5 Rant		/	
6 E Conter to the second second		· · · · · · · · · · · · · · · · · · ·	
7			
9			
10			
11			
13		(4) - (4) -	(4. s. 2. g. 11) 1
<u></u>	onal samples shall be listed on attached long form.)		
NOTE: REI will analyze incoming eamples based upon information received and will not be following samples for paquested analysis as indicated on this Chair of Custody shall or	be responsible for errors or omisalona in calculations resulting from th		
	10/1	(Dell)	
Relinquished By: Laboratory Use Only	Date/Time	Temp. (F°)	on: On Ice Sealed IntactY/N Y/N 🐠
Received By Date Results: Contact Date Flage Physics Email Fax Date Contact Date Contact C		Page Phone Email Fax	Date Time Initials
Contact Page Phone Email Fax Date	Time Initials Contact	Page Phone Email Fax	Date Titne Initials
het meg	1200/4,8692 =		

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

A =	Amosite	$\mathbf{F} =$	Fiber
An =	Anthophyllite	B =	Bundle
C =	Chrysotile	C =	Cluster
Cr =	Crocidolite	M =	Matrix
T =	Tremolite		. ,

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

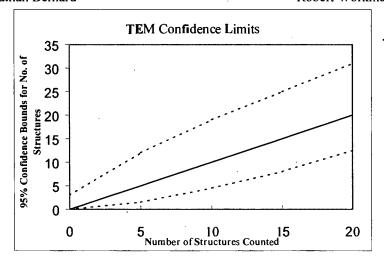
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs	Environmental, Inc.
TEM Asbes	tos Structure Count

TEM Asbestos Str	ucture Count
Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	110.0
Date recsived by lab	12/2/11
Lab Job Number:	225287
Lab Sample Number:	83145+40
F-Factor Calculation (Indirect Pro	1012/2/11

Analyzed by	-UL
Analysis date	12/2/11
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	7
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Laboratory name:	REI
Instrument	JEOL 100 CX N (S
Voltage (KV)	100 KV
Magnification	20KX YOKX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Fraction of primary filter used		
Total Resuspension Volume (ml)		
Volume Applied to secondary filter	1	

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Identification Mineral Class					1 = yes, blank = no	
Ond	Grid Opening	Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F4-3	M												
	24-3	M					lyon f	802 intac	3-	7.0	lebrs			
	C4-3	W					Prey 6	A 1	a 1/	em	12/1/11			
	B43	M						0	1.					
3	95-6	12						·						
	US-6	M												
	35-6	2												
		-											·	
•					•									
· .														

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	OKX JOKX
Grid opening area (mm2)	0.01
Scale: IL=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QА Туре	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1104
Date received by lab	12/2/11
Lab Job Number:	225287
Lab Sample Number:	83144951
F-Factor Calculation (Indirect Pre	iz/z/n eps Only):

Fraction of primary fitter used

Total Resuspension Volume (ml)

Volume Applied to secondary filter

	<u> </u>
Analyzed by	M
Analysis date	12/2/11
Method (i)=Direct, I=Indirect,	
IA=Indirect, ashed)	
Counting rules	0.41
(ISO, AHERA, ASTM)	AH
Grkl storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Ond	Cita Opening	Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	95-6	Mo												
· ·	F5-6	M				Pre	PA	80/ infae	13-	7/5	lebrs			<u> </u>
	95-6	M				men	B 50			J. Se	brs			
	C5-6	M						Ju ffer	,	2/2/	(1.1.			
B	F5	W			•									
	B6-41	M									·		·	
	B6-6	M												

Reservoirs Environmental, Inc.

Laboratory name:	REI
Instrument	JEOL 100 CX N (S
Voltage (KV)	100 KV
Magnification	20KX YOKX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

K+K
A
1104
12/2/11
225287
831457

F-Factor Calculation (Indirect Preps Only):										
Fraction of primary tilter used										
Total Resuspension Volume (ml)										
Volume Applied to secondary filtar (ml)										

Analyzed by	M
Analysis date	12/2/11
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	7
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	ructures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
J	Cita Opening	Туре	Primary	Total	Length	Width		Amphibole	ċ	NAM	Sketch/Comments	Sketch	Photo	EDS
A	63-1	M												
	F3-1	VV)				frer		, intact :						
	93-1	NO				Pres	B ~ 80	1, intact	57,	lebr	<u>.</u> 5-			,
	C3-1	ND						Jen W	b	12/2	ر ا			
B	F4-3	M				·								·
	24-3	M												
	C4-3	NO												
·.													,	
							,							

Reservoirs	Environmental,	Inc.
TEM Ashès	tos Structure C	ount

Client: R+R										
R+R										
A										
1102										
12/2/11										
225287										
831452										

Analyzed by	-UL
Analysis date	12/2/11
Method (D=Dlrect, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Data Analyzed

F-Factor Calculation (Indirect Pr	reps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class				1 = v	es, blank	= no
		Туре	Primary	Total	Length	Width	1-0	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F3-1	ND						,						
	23-1	M		·		Prey	A 260	l, intact	151	Se	DN.S			
	c3-1	M			=			1 den	16	ra	apple			
	(4-1	W							/					
B	K5-1	W												
	45/	ND												
	(15-1	M										·		
														•

REI

JEOL 100 CX N S

100 KV SOKX JOKX

0.01

0.28 um

0.055 um

Laboratory name:

Magnification
Grid opening area
(mm2)

Scale: 1D ≈
Primary filter area
(mm2)
Secondary Filter Area
(mm2)

Scale: 1L =

QA Type

Instrument Voltage (KV)

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{I}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{IL}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



December 6, 2011

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 225393-1 None Given

Project Description:

3rd West Sub - RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 225393-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 225393-1

R & R Environmental

Client:

Client Project Number / P.O.: None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

December 5, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

December 5, 2011

Client ID Number	Lab ID Nu	umber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)	Detected	(s/cc)	(s/cc)	(s/mm²)
3W-120211-S	EM	832054	0.1000	902	ND	0.0043	BAS	BAS
3W-120211-E	EM	832055	0.1000	925	ND	0.0042	BAS	BAS
3W-120211-N	EM	832056	0.1000	900	1	0.0043	0.0043	10.0
3W-120211-W	EM	832057	0.1000	155	ND	0.0248	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected BAS = Below Analytical Sensitivity Filter Diameter = 25 mm Effective Filter Area = 385 sq mm

Average Grid Opening in mm² = 0.010

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 225393-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

December 5, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

December 5, 2011

Client ID Number	Lab ID N	umber	Asbestos Mineral					Structures >5 Microns	**Excluded Structures	Asbestos Structures
			_		estos Str			in Length		for
				Fibers	Bundles	Clusters	Matrices			Concentration
3W-120211-S	EM	832054	ND	0	0	0	0	0		0
3W-120211-E	EM	832055	NO	0	0	0	0	0	0	0
3W-120211-N	EM	832056	Chrysotile	0	1	0	0	0	0	1
3W-120211-W	EM	832057	ND	0	0	0	0	0	0	0

^{*}See Analytical Procedure for definitions

^{**}C = Excluded from total due to lack of confirmation

^{**}L = Excluded from total for length less than 0.5 micron (AHERA only)

^{**}A = Excluded from total due to i ncorrect aspect ratio

ND = None Detected

नवन्तर ०।५० १७५

Due Date: 12-6-11

Due Time: 945-

RESERVOIRS Environmental. Inc. 880 i Logan St. Denver, CO 80216 • Pti: 300 984-1996 • Fax 303-477-4278 • Toll Pree :868 RESI-ENV

Peger: 303-909-2098

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1	ranslibr P.O.#:										_ f"					ddress:		_								
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	OS LABORATOR									F	REQU	EST	ED A	NAL	YSI	\$:		VAL	ID N	ATRI	X CC	DES	LAI	NOTES:
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Metal(s) / I		RUSH	1 24 hr		**Prior notifies	lion is	}	별	1		1) }		11.	_ -	ĺ)		_	SW			= Food		
Fume Scar	Metals & Welding	RUSH	1 5 day		required for F		5	8	1 !]	Scan				8	- [5 L	Drinkin	g Wa				Vater = WW		
Organics	N/ ICLP	24 he	3 day	6 Day	turnaround	B. **	Point Count	¥ ₽	1 1		\$	{ }) = Oth				
	OLOGY LABORA						عَ	S B	1		Metals			1 8	3	5 5		HER NOTES	A5	MET	/92 BJ	proved	wipe i	ntedla only**		
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	a, Listeria, E.coll, A			3-5 Day			5	1 \$ 8	88 ¥	4	Fume,	}	1	;	1	<u> </u>	튛	OROTH	ł		1 1					
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Special Ins	structions:				·····		Short	AHERA, Pant, Mik	7400A,	ğ	. P	ORGANICS - METH	Salmonetta: +/- E.coti O157:H7:	8 2	انداة	副量	± 1	3	۾ ڳا	8	# Containers				EM Nur	Der (Laborator
[_						1 · 1	· 6	1	1	METALS RCRA 8.	NAS.	등 없	Liste		Saure	Y &	<u></u>	Sample V (L) / Area	ĕ	ఠ	Dat	- 1	Time !	L	se Only)
Clients	mple ID numbe	r (s	ample ID's mu	ist be unique)			켪	TEM Sem	ᅙ	DUST	를 있	ğ			OBIO	LOGY		18 S	<u>8</u> ∃	Matrix	#	Colled mm/de		Collected		
13W	420211-5			<u> </u>				X							\mathbb{L}^{1}	7.		}	1902	A		12/02	lu		83	2054
2 3W-	120211-E										- 1								925			1	: :			65
3 3W-	120211-N	•																	900	13	П	7	1			54
4 3w	120211-W							1				1			TT				155	T		T			. :	57
5									\Box	7		\exists	\top		П											
6						:													12.1							
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8											. :					ŀ										
9												1	\sqcap			П										
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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite Cr = Tremolite Structure Types F = Fiber B = Bundle C = Cluster M = Matrix

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

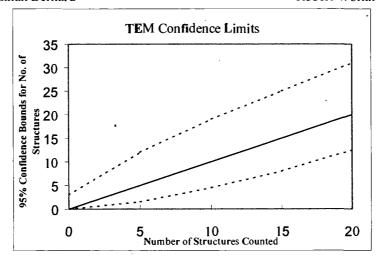
Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI LAB
Instrument	JEOL 100 CX S
Voltage (KV)	100 KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	N/A
QA Type	Not QA

ucture Count
R&R
Environmental
A
902
12/05/2011
225393
832084

Analyzed by	n.zimbelman
Analysis date	12/05/2011
Method (O=Direct, (=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid atorage location	Month Analyze
Scope Alignment	Date Analyzed

F-Factor Calcul	ation (Indirect	Preps Only):
-----------------	-----------------	--------------

Fraction of primary filter used	1
Total Resuspension Volume (mi)	
Volume Applied to secondary filler (ml)	

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = yes, blank = no			
Grid	Ond Opening	Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comnients	Sketch	Photo	EDS	
+	F2-6	لالع									. •		· ·		
	62.3	LA													
	F3-1	ND		İ											
	E3-1	6N													
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	44-6	û b								'		İ			
	#1.6	49				B	~ 4			i					

n.zimbelman

Reservoirs Environmental, Inc. TEM Asbestos Strveture Count

	<u> </u>
Laboratory name:	REILAB
Instrument	JEOL 100 CX S
Voltage (KV)	100 KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.2 8 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	N/A
QA Tvpe	Not QA

/EM Astrestos Str	R&R
Client:	Envtronmentai
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	925
Date received by lab	12/05/2011
Lab Job Number	225393
Lab Sample Number	832055

Analysis date	12/05/2011
Wethod (O=Direct, i=Indirect,	
IA=Indirect, ashed)	<u> </u>
Counting rules	
(ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Analyzed by

F-Facfor Calculation (Indirect P	reps Only):
Fraction of primary niter used	
Total Resuspension Volume (mi)	
Volume Applied to secondary filter (ml)	

Grid	Grid Grid Opening		No. of Str	uchires	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	: = no
3	ond Opening	Туре	Primary	Total	Length	Width	identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EOS
+	H2-1	43												
	41-3	4 4									•			
	H26	4												
	-13-1	r												
	43-6	より												
	+44-1	49			4	t , q	0 /200	t-1-3 %.	1 al	(رده				
3	F(-3	62												l
	E(-6	취실						·						l
	E4-4	(L)									_			
	t3-3	NA				B:	\sim	+						

Laboratory name:	REI LAB
Instrument	JEOL 100 CX S
Voltage (KV)	100 KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0. 28 um
Scale: 1D =	0.05 6 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	N/A
QA Type	Not QA

IEM Aspestos Str	
]_	R&R
Client :	Environmental
Sample Type (A=Air, 0=Dust):	A
Air volume (L) or dust area	
(cm2)	900
Date received by lab	12/05/2011
Lab Job Number:	225393
Lab Sample Number:	832056
cas campie (tarise).	00200

Analyeed by	n.zimbelman
Analysis date	12/05/2011
Method (D=Direct, 1=Indirect,	
(A=Indirect, ashed)	0
Counting rules	
(ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indired	t Preps Only):
Fraction of primary filter used	
Total Resuspernion Volume (mi)	
Volume Applied to secondary filtr (ml)	or

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions Identification		Mineral Class				1 = yes, blank = no		
<u> </u>	Site Opening	Туре	Primary	Total	Length	Width	i de intinoction	Amphibole	C	NAM	Sketch/Comments	Sketch	Photo	EDS
4	252-6	NJ												
	エンシ	संध										·		
	£2.3	40												
	£3.3	μŊ												
	E3-6	B			(5	5	U		/		4	_1		
	B3_6	SYJ				Ar8	5 X 3 K1	f,1-37J	شكاس	>				
В	33.6	MY				·				:				
	もろっろ	r d												
	F1-3	4 9												
	34-4	411)				. B	~	A-						

Laboratory name:	REI LAB
Instrument	JEOL 100 CX S
Voltage (KV)	100 KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.28 um
Scale: 10 =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	N/A
QA Туре	Not QA

	R&R
Client:	Environntentai
Samp le Type (A≂Air, D=Dusf):	. A
Air volume (L) or dust area (cm2)	155
Date received by lab	12/05/2011
Lab Job Number:	225393
Lab Sample Number:	832057

Fraction of primary fitter used	l
Total Resuspension Volume (ml)	

Analyzed by	n.zimbelman
Analyele date	12/05/2011
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting mies (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures .	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Gilo	Gild Growing	Туре	Primary	Total	Length	Width	.commodion	Amphibole	С	NAM	Sketch/Comnients	Sketch	Photo	EDS
A	43 5	d il												
	13-1	e d												
	1231	१४		•										
	毛ョ /	K.J												
	£3_(धप			,									
	F3 -1	613			A T	90	Vret-	1-3 × 10	ردد الا)				
وك	Edil	STY												
	=4,1	6 B												
	DI.I	فالم												
	46,6	40				ہ دا	/ A							

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{\text{IL}}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening